

A NEW SPECIES OF ACHLYA

By W. C. COKER and J. N. COUCH

Achlya *Orion* n. sp.

Hyphal threads long, reaching a length of 1.5 cms. on house-flies, more slender than in most *Achlyas*, from $10-40\mu$ thick close to base, rarely up to 85μ thick, often wavy; usually little branched and pointed at tips when young; becoming considerably branched with age. Sporangia abundant, cylindrical, usually borne singly on the tips of the main hyphae in young cultures, renewed by cymose branching, often forming several clusters at regular intervals on the same hypha, irregular and wavy in old cultures, $12-37 \times 36-600\mu$ (rarely up to 900μ). Spores $9-10\mu$ thick, emerging as usual in *Achlya*, but often falling to the bottom in an open group instead of forming a sphere at the sporangium mouth. Oogonia abundant on flies, grubs and vegetable media, spread over the entire culture from bases of hyphae to tips, giving the culture a lacy interwoven or net-work appearance; the diameter $30-60\mu$, commonly $32-48\mu$; usually borne singly on long, crooked, recurved stalks which arise racemosely from main hyphae and which vary in length from 2-10 times the diameter of the oogonia; often oogonial stalks may branch bearing two oogonia and rarely oogonia may be borne on a stalk which arises directly from another oogonial wall; very rarely intercalary; oogonial wall usually without pits (except where the antheridial tubes enter) when grown on flies or grubs, but as a rule with pits when grown on boiled corn. Eggs 1-8, usually 1 or 2 in each oogonium; $25-45\mu$ in diameter, most $33-36\mu$, eccentric when ripe with one large oil drop; usually spherical, but often elliptical from pressure. Antheridial branches almost always androgynous, usually arising from the oogonial stalk itself, less often from the main hyphae; rarely declinuous; antheridia on about 75% of the oogonia, one or two on an oogonium, tuberos; antheridial tubes obvious penetrating the oogonia and reaching the eggs.

The species seems to be quite rare, having been recognized only twice in considerably over a thousand collections, made by the senior author and his students. It was found in some water and trash collected from the west branch above the Meeting of the Waters

(No. 6 of September 26, 1919), and in the same kind of material from the branch in Battle's Park behind Dr. Pratt's residence (No. 4, June 10, 1920). The description has been made from cultures descended from a single spore.

Our plant can be distinguished (with the unaided eye) from most other Chapel Hill Achlyas by the network appearance given it by the oogonia being scattered over the entire culture from the bases of the hyphae to the tips. *Achlya racemosa* approaches this network appearance more than any other species of Achlya but in the latter the oogonia are not nearly so abundant nor do they extend entirely to the tips of the hyphae. In some species, such as *Achlya oblongata*, the oogonia are borne in a definite zone near the substratum and from half to two-thirds of the length of the hyphae from the tips backwards are without oogonia. In the *Prolifera* group the oogonia are scattered more or less over the entire culture but the big hyphae and long sporangia dissipate the net work appearance.

If we ignore the egg structure, the present species seems to be closest to *Achlya polyandra* Hildb. The two plants resemble each other in the long, racemose oogonial branches which are recurved at the tip; in the often branched antheridial stalks which arise chiefly from the oogonial branches; and in the smooth oogonial walls which are normally without pits except where the antheridia touch. The two species are readily distinguished, however, by the difference in the number of eggs in the oogonia, and in the size and structure of the eggs. In *Achlya polyandra* the number of eggs varies from five to twenty-five, the usual number being ten to fifteen, their average diameter is 27μ and they are said to be centric; in *A. orion* the usual number of eggs is one to two, the diameter of most $33-36\mu$, with an eccentric structure. In *Achlya polyandra* the sporangia are reported as often not abundant, and secondary ones rare; while in our plant both primary and secondary sporangia are abundant. This species is named for the nebula in Orion, which a photograph of the magnified culture somewhat resembles. This photograph, together with drawings by J. N. Couch will appear in a volume by W. C. Coker on the *Saprolegniaceae of the United States* to be published soon.